

## BAILEY LINER ISSUE

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From: Julie Larson  
Subject: Bailey Liner Issue – Research and Recommendations

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The East Dike Cap has an area of settlement that has been documented in the site inspection reports since 2005. A survey was conducted in 2005 and it did not indicate that ponding was an issue at that time. Parsons continued to monitor the area during subsequent site visits and inspections.

During 2009, a site visit confirmed ponding in that area on the East Dike Cap. Parsons conducted another survey and compared the survey data with that of the 2005 survey. The area in question did settle approximately 0.5 feet since the 2005 survey.

In 2009, Parsons conducted an initial qualitative review of the settlement area. Results of the qualitative review identified that the potential the liner has yielded due to the 0.5 foot settlement is low. A follow-on desk-top engineering analysis was performed to identify key parameters of the existing liner system as a validation step for the qualitative review findings. The remainder of this memorandum details the findings of that research and analysis and outlines the path forward to address the settlement issue.

### Research Findings

Parsons pulled the archived files from the construction phase to confirm the type of liner installed on the caps and associated method alternative employed to weld the liner panel seams.

Information obtained from the file archives confirmed the liner is 60 mil thick high density polyethylene and that liner panels were welded together via fusion welding. Based upon the liner being high density, 60 mil thick, and fusion welded, the analysis suggests that the liner can withstand the amount of settlement (0.5') documented by engineering survey to have occurred between 2005 and 2009.

### Conclusion and Recommendations

Parsons recommends conducting approximately 10 shallow hand excavations throughout the settlement area extending through the topsoil to expose the top of the geosynthetics. Parsons recommends we survey the top of geosynthetic elevation at each of the shallow hand excavation locations. A comparison of the current top of geosynthetics surface elevation to the “as-built” top of geosynthetics surface elevation will quantify the total amount of

settlement experienced since initial construction. We recommend performing an engineering analysis to confirm the total amount of settlement is within specified tolerance for the installed HDPE liner system. Once confirmed, we propose to employ the current settlement rate to project the number of years anticipated until liner yield. The anticipated year of liner yield can be compared to the post-closure time line in anticipating whether or not the shareholders may expect to be required to expend capital for liner repairs sometime in the future.

Due to the existing institutional controls at the Bailey site, the shallow hand excavation activity would require EPA approval of a work plan for the hand excavation and subsequent survey points for the liner.

Parsons will proceed with including this excavation and survey task into the 2011 budget.